Asset Management In Action

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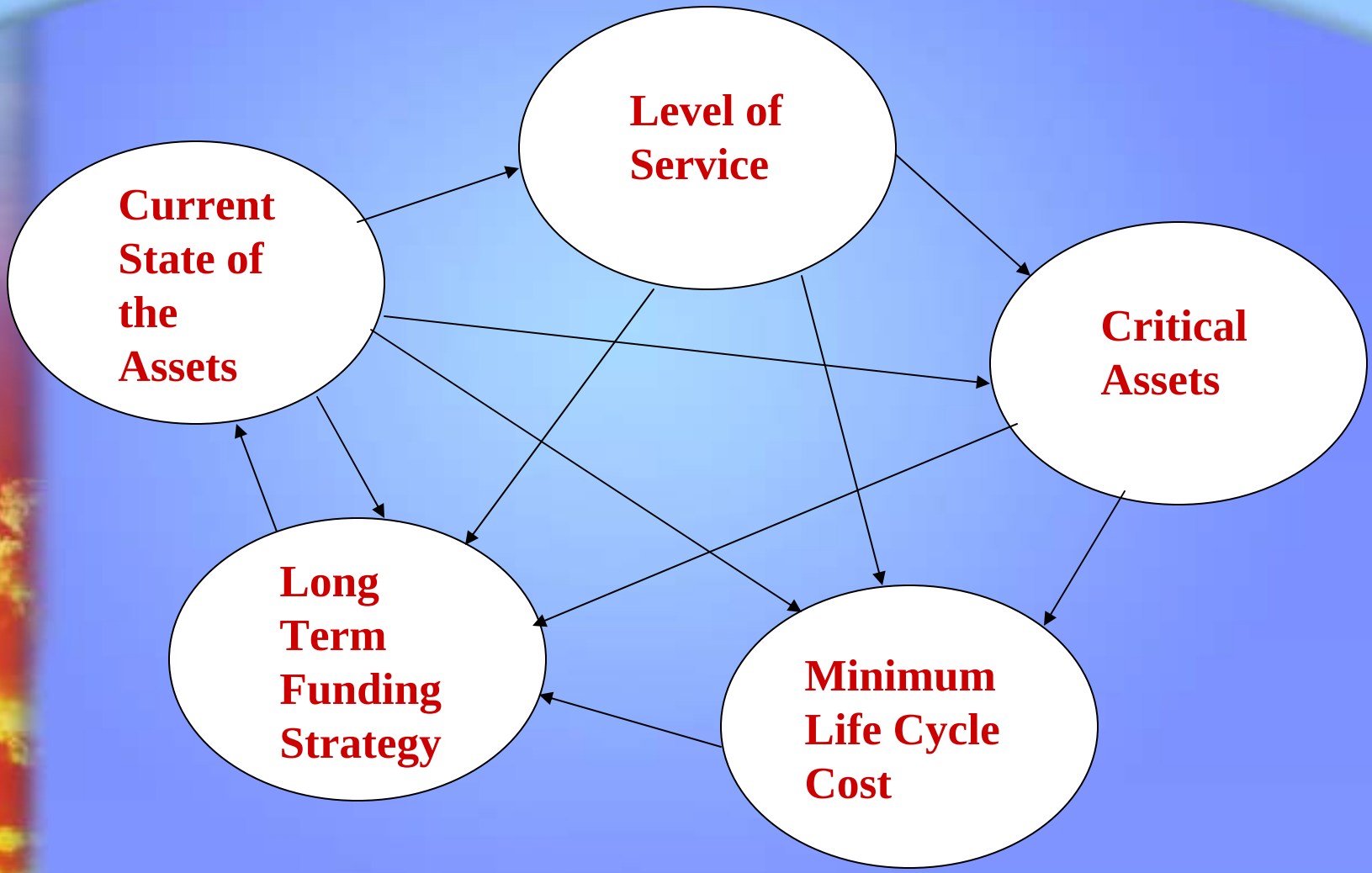
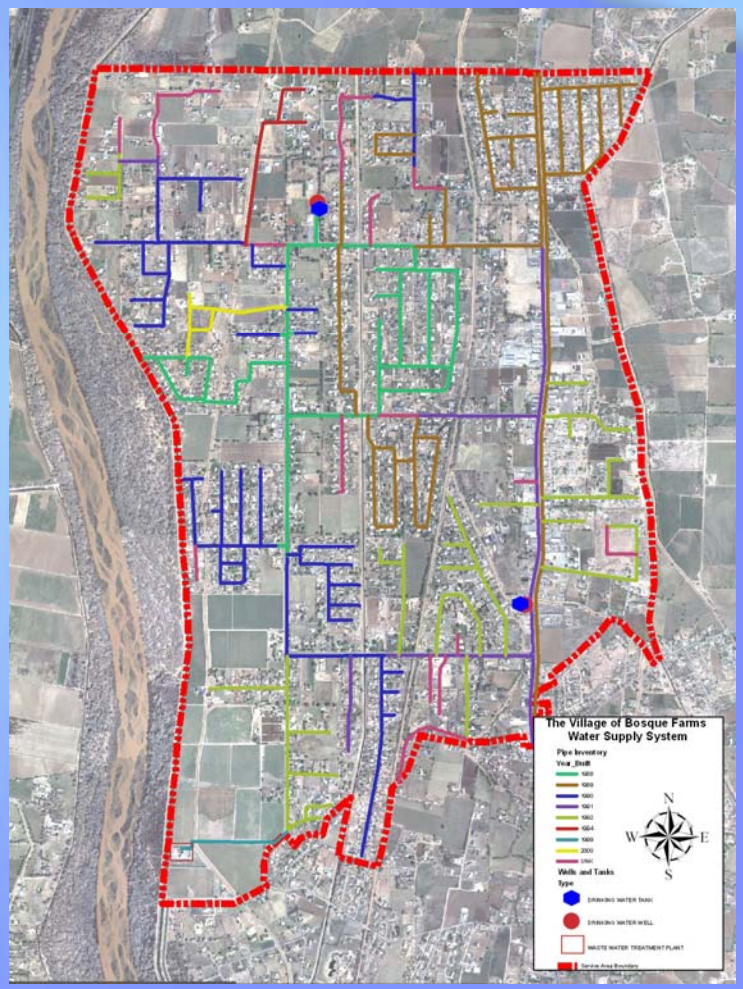
Communities Can Start Anywhere With AM to Achieve Victories



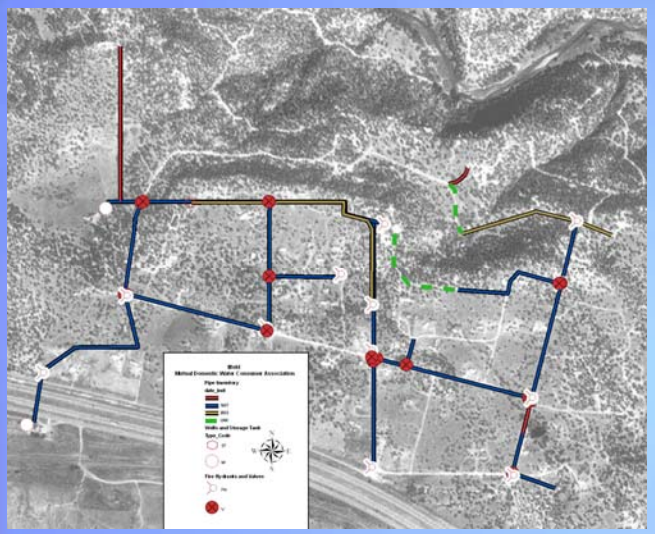
Some “Real World” Examples Both Big and Little Systems

Water System/Fire Department Cooperation

- System had no electronic map and limited hard copy mapping (some “as-you-wish-it-were-builts”)
- NM EFC did electronic map
- Saw chance to benefit Fire Dept.
- Detailed field check of



Line Locations



- System had no mapping
- Lines not in usual locations along roads
- “old timers” aware of locations, but won’t be around forever
- Need to document line locations
- Also, allowed indication of pipe type and size

Criticality – What does it *Really* Mean

- From an operator's perspective, criticality may mean the equipment or activity causing the biggest "PIA" factor
- From a system/overall perspective, criticality is something completely different
- Criticality exercise changed operators thinking about what components of the system were truly critical to sustained performance

Customer Communication/Customer Service Focus

- In one case, system had strong feelings regarding chlorination
- Decision driven by Board President
- With Level of Service Agreement, Customers will be involved in decision
- May make it more of a community decision in the future

Some In-Depth Case Studies

Case Study 1
Capital Projects – More Informed Decisions/Better Projects

Case Study 1

- Setting – Pre Asset Management:

  System requested grant funding to replace its distribution system.

  – Reason given

  Piping is old, it breaks a lot, repairs costs are increasing

- Data from System

  Piping is PVC it is about 20 to 30 years old

  Costs of repairs are about $1,500, used to be about $1,200

  No idea how many repairs

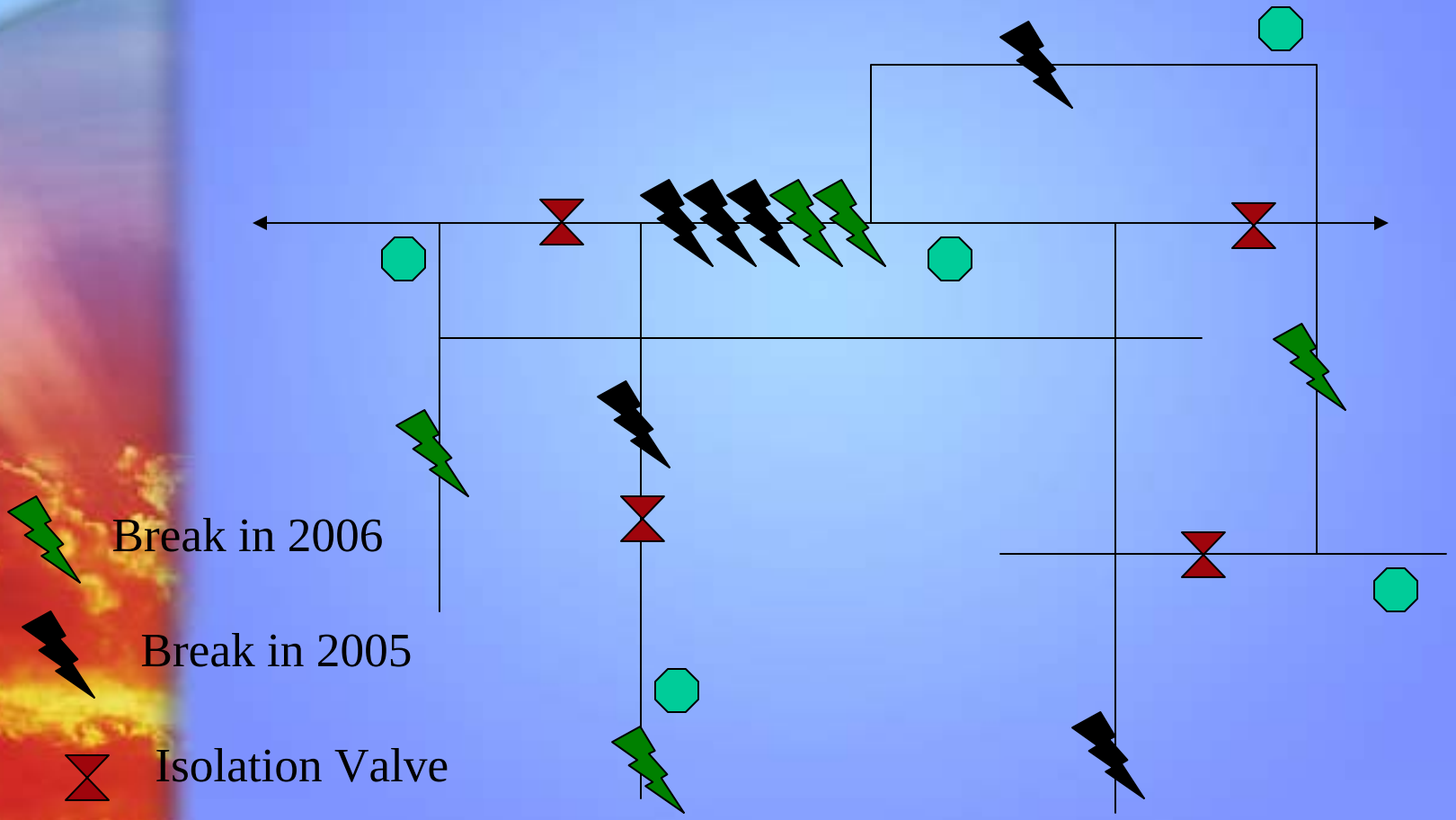
  Don’t track where repairs occur

  Don’t track cause of repair

Case Study 1

- Setting – Post Asset Management:
  - Looked at monthly board meeting records for repairs
  - Asked for best estimate of where repairs have been made
  - Actual Data
    - Total Number of Breaks 2005 = 16
    - Total Number of Breaks 2006 = 9
- Reality Check
  - Number of Breaks is not increasing
  - Not all Breaks are created equal; some are main line, some are service (2005 – 6 main, 10 service; 2006 5 main, 4 service)
  - Cause of Breaks is critical; age only relates to deterioration breaks
  - Some breaks were construction related (hit line); others related to poor design

Case Study 1



Break in 2006

Break in 2005

Isolation Valve

Fire Hydrant

Case Study 1

- Financial Reality Check
  - Repairs for 2005 approx $24,000
  - Repairs for 2006 approx $13,500
  - Just Mainline for two years approx $14,700
  - Cost of replacing 1 mile of main approx $500,000; system is several miles long; initial estimates were >$5 million for replacement

Case Study 1

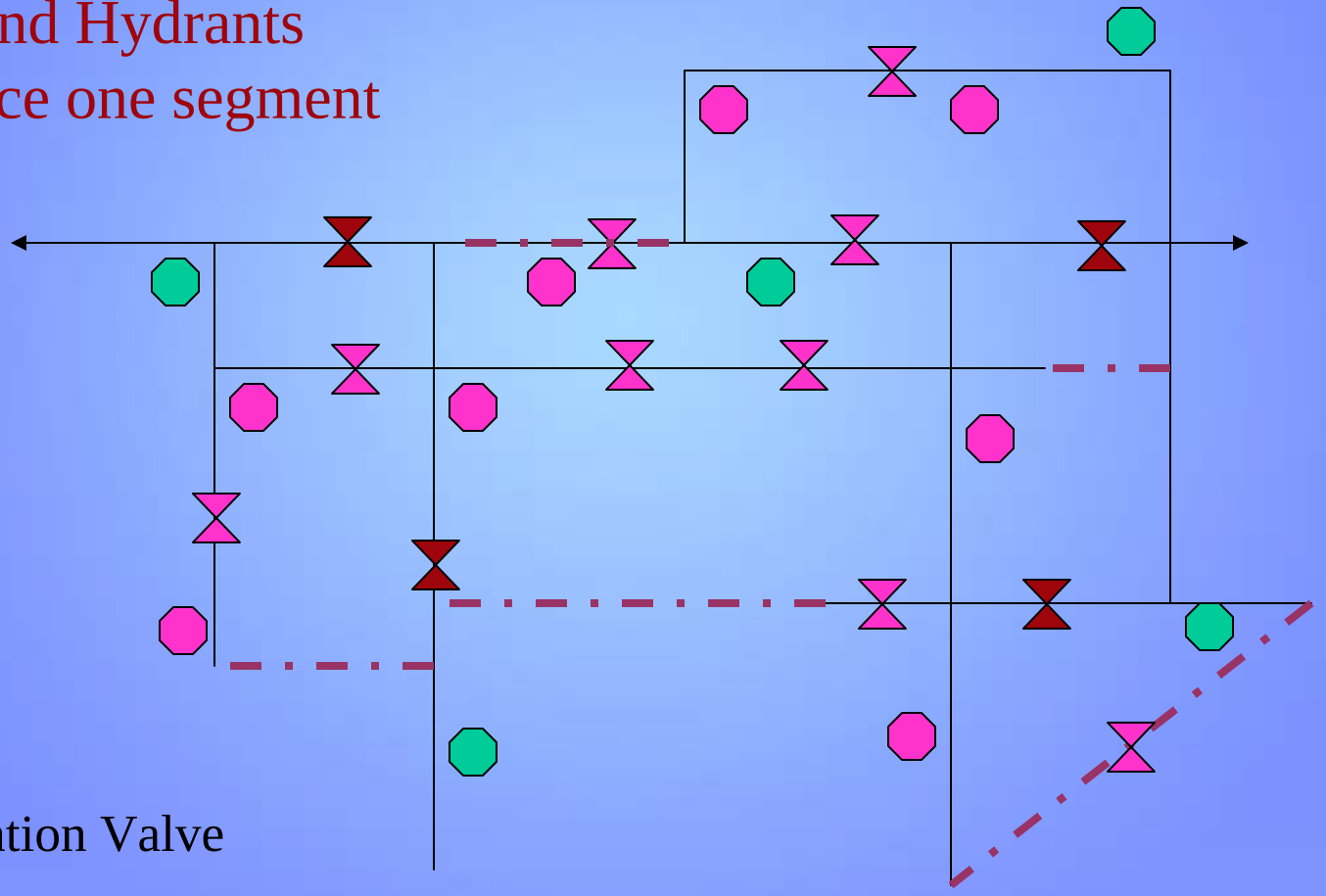
- Let's look at Customer Service
  - Will customer service increase if distribution system is replaced as is?
    - No
  - Will customer service decrease?
    - Yes in the short term; disruptions in service, streets ripped up
  - Is there any customer service needs the current system does not meet?
    - Yes, insufficient shut off valves, insufficient hydrants, dead ends without loops

Case Study 1

- Let's look at the situation with an asset management mind set
  - Pipe is relatively new
  - Repair costs are relatively cheap
  - Number of breaks is low
  - Repairs are not the result of age (deterioration)
  - Service will not increase with distribution system replacement, but will increase with new valves, loop lines, new hydrants, and repair of one poor construction condition
- Recommendation: System can do different project, spend less money and increase customer service

Case Study 1

Add Loop Lines,
Valves, and Hydrants
and replace one segment
of pipe



Isolation Valve

Fire Hydrant

Case Study 1: The Business Case

- System now has an electronic map that will allow them to track breaks over time (hand drawn on map)
- Costs of repairs can be tracked over time
- Smaller project can be implemented to improve customer service and system
- Major capital cost savings

Large System Pipe Issue

- Setting: Pre Asset Management:
  - 5% of the total distribution system is steel pipe
  - 40% of the all main line breaks are steel lines
- Data from System
  - Repairs not tracked in terms of location
  - “All steel pipe is bad”
  - Steel pipe is 50 to 60 year old so it has reached useful life

Case Study 2: A Large System

Asset Criticality and Strategic Asset Replacement

Case Study 2

- Setting: Pre Asset Management:
  - 5% of the distribution system is steel pipe
  - 40% of the breaks occur on steel pipe
- Data from System
  - Repairs originally not tracked in terms of location
  - “All steel pipe is bad”
  - Steel pipe is 50 to 60 year old so it has reached useful life

Case Study 2

- Solution: Pre Asset Management:
  - Start at one end of the system and replace pipe
- Reality Check
  - Only have enough money to replace 3 to 5 miles of pipe per year
  - At this pace, will take 17 to 25 years to replace all steel
  - Some pipe that is “bad” will have to stay in place for this amount of time

Case Study 2

- Solution: Post Asset Management:
  - Track number & location of breaks for past 10 years
  - Examined number of breaks on each segment of pipe
  - Talk to operators regarding knowledge of steel pipe
  - Undergo prioritization process to figure out which segments to do first
    - major arterials
    - large diameter
    - areas where there is planned road or sewer maintenance
    - group areas to cut down on costs
  - GIS mapping to identify key segments
- With insufficient funds, must be strategic

Case Study 2: Final Outcome

- System has dedicated funds to steel pipe replacement
- Undergoing process of prioritization to identify critical steel pipe and which pipe can last longest

Case Study 3: Large WW System Business Case for O&M vs. Capital

Case Study 3

- Concrete interceptor failures – expensive & potential for significant environmental and social impacts
- Insufficient funds to replace all interceptors at one time
- Are there O&M choices to prolong time before failure?
- How well do they work, what is cost vs. benefit?

Case Study 3

- Looking at cost of chemicals
- Looking at sewer condition on lines that use chemicals
- Looking at collapses on lines with and without chemicals
- Looking at cost and location of collapses over time
- Answer not yet fully known regarding impact of O&M vs. Capital, but getting there

AM is not

“The Answer”

However it is

“An Answer”

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